81516



Page

March-13-12 8:	42:3/ AM		··						<u> </u>		
Revision ID:	D350-748-10 U/R Crosstube Insta	llation, High Fwd		Accept	*N900	040	1100) * s	Setup Star	1.7	S1*
Start Date: Required Date: Reference:	15/03/2012 04/04/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:					
Approvals:	Process Plan	: MLJ	Date: 12/03	SPC (Y/N):	· · · · · · —	nte:		Ą	Run Star Stop	171	R1* R2*
Sequence ID/ Work Center ID		Operation Description	-	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revis	sion Nbr					,				
D350-748-141	F U/F	OK OF 17	- 43.150	•		•					Λ
*100 *100* DC	/	DOCUMENT CONTRO	Dr 2/	0.00	,			1 -			W1206
Document Control			pluefile & type labels pe	r PPPD350-748-101	CHG002			S_{ij}	,	- 105	÷ . •
1. W	·	•		•						्र । इस्तर्भ	
*110 *110*		BENDING MACHINE	CROSSTUBES	0.00					N	<u> </u>	- <i>C</i>
CNC Bend 1	T_{ν}	Memo		0.00		•			——————————————————————————————————————	1/2	2-5-7
CNC Delta 100 Bend	ler	Bend tube a Folio FT		H using CNC bender program	m D350F and					*	
120 * 12 0*	*	QC15- Crosstube Dimer	nsional Check	0.00	A16						
QC	4	Memo		0.00	((0					· · · · · · · · · · · · · · · · · · ·	
Quality Control	·				. :		٠.	` **.			• ,
reh.	USA.	ere P/0+0	metoar	Pro: 1694	12			. Cox	12105	110	0

roid redid + mapeet attached coje to will

Crefts

Dart Ae	rospace	Ltd	٦.							
W/O:			WO	RK ORDER CH	ANGES					
DATE	STEP	PR	OCEDURE CHAP	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector
- ·										
				,						:
•										
Part No	:	PAR #:	Fault Categ	Jory:	NC	R: Yes	No DQ	A:	Date:	
	R	esolution:	Disposition):	QA	: N/C CI	osed:		Date: _	
NCR:			WORK ORDE	ER NON-CONFO	RMANCI	E (NCR	()			
DATE	STEP	Description of NC		Corrective Action	Section B		Verific	cation	Approval	Approval
DAIL	JILF	Section A	Initial Chief Eng	Action Descrip Chief Eng	tion 	Sign & Date	Sect	ion C	Chief Eng	QC Inspector
								•		
00	۳٠,	· /								
.	3,	1								
								٠		•.
								•		
						l				

Wa	rk	Or	der	ID	21	514	6
~V V ()	ľĸ	\ /!	ucı	117	\mathbf{O}	σ	

Quality Control

81516

Page 2

March-15-12 8:42:37 AM Accept Item ID: D350-748-101 *N900040100* Setup Start **Revision ID:** U/R Crosstube Installation, High Fwd Item Name: **Start Date:** 15/03/2012 Start Qty: 1.00 Cust Item ID: **Required Date:** 04/04/2012 Req'd Qty: 1.00 *1* **Customer:** Reference: Run **Tooling:** Approvals: **Process Plan:** Date: Date: Stop **SPC (Y/N):** QC: Date: Date: Sequence ID/ Operation Tool ID Tool# Plan Set Up/ Reject Insp. Accept Reject **Work Center ID** Description Qty Qty **Run Hours** Code Number Stamp 125 0.00 41 *125* HandFXtube 0.00 Memo ***Stress relief Hand Finishing Crosstubes Heat treat crosstylbe as per QSI010 4.3 Temp: Start time: Finish time QC6-Inspect dimensions to drawing 127 0.00 *107* QC Memo

Di	art	Aer	ospa	ice	Ltd
_					

· · · · ·	. oopao.	/							4	
W/O:		٠	WORK ORDER CHANGES							
DATE	STEP	PRO	OCEDURE CH	IANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
								,		
· · ·										
·		:								
Part No	:	PAR #:	Fault Ca	tegory:	_ NCR: Ye	s No DQ	A:	Date: _		
	R	esolution:	Disposit	ion:	_ QA: N/C	Closed:		Date: _		
NCR:		\	WORK ORDER NON-CONFORMANC							
DATE	STEP	Description of NC		,	tion B	Verifi	cation	Approval	Approval	
DATE	SILP	Section A	initial Chief Eng	Action Description Chief Eng	Sigi Da		ion C	Chief Eng	QC Inspector	
				,						
•		·								
				,						
						:				

Work Order ID 81516 March-15-12 8:42:37 AM			*815	516*						Page 3	
Revision ID: Item Name: Start Date:	15/03/2012	allation, High Fwd Start Qty: 1.00	*1*	Accept	*N900 Cust Item		100) * :	Setup St	art *N	IS1* IS2*
Required Date: Reference:	<u>-</u>	Req'd Qty: 1.00	*1*		Customer:	·	_	I	Run Sta	art *NI	ID1*
Approvals:		n:′	_			ate:			Ste	op *N	R2*
Sequence ID/ Work Center II 130 *130*)	Operation Description Crosstubes		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Crosstubes Crosstubes			as per Dwg D350-748- Il table as per QSI 010	. 0.00 141 Using DT8876 A,B &C	Drill Jigs,	(W)				17	-5-2
		4-Remove al	art # and Batch # as per I marks from tube withing ght coat of LPS3 on the Batch:	n limits of D350-748-141	JW					12	-5-23

140

QC5- Inspect part completeness to step on W/O

140

Memo

0.00

Quality Control

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

r.

Dart Aerospace Ltd

W/O: WORK ORDER CHANG							······································			
DATE	STEP	PRO	CEDURE CHAI	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
-										
								<u>l</u>		<u> </u>
Part No		PAR #:								
	R	esolution:	Disposition):	QA	NC C	losed:		Date: _	·
NCR:			WORK ORDE	ER NON-CONFORM	ANCE	(NCF	₹)			
		Description of NC			ion B		Verific	ation	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign of Date	Section		Chief Eng	QC Inspector
-3/-	>									
23	3 51	,				:				
<u> </u>										
		·								
						<u> </u>		·		
1	Ì		1							

QC5- Inspect part completeness to step on W/O

170

Memo

Quality Control

5.00 Entrells

SER WID CHG, OVER

Page 4

Insp. Stamp

170

OC

FO

Dart Aerospace Ltd

W/O:		WORK ORDER CHANG	GES			•	•
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12.3.15	171	LUAD TEST to 3500 15 POR 1 MINUTE		12/6/18		12:03:15 031040	570676
12.13.15	172	NOT P1017258 CX12106/19 Real Calela				9 12.53.5 051 Jn	12/06/26

Part No:	PAR #:	Fault Category:	NCR: Yes No DQA:	Date:
Resolution:		Disposition:	QA: N/C Closed:	Date:

NCR:	WORK ORDER NON-CONFORMANCE (NCR)										
		Description of NC		Corrective Action Section B			Approval	Ammunus			
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Chief Eng	Approval QC Inspector			
								:			
								·			
•							· · · · · · · · · · · · · · · · · · ·				
and the same of th											
	į										
	1		1 1		1	1		1			

200

200 Crosstubes

Crosstubes

Memo

0.00

Crosstubes 1-Install Ground wire Insert, then insert screw and washer

2-Install Abraision strips as per Dwg D350-748-141 & OSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

0.00

Dart Aerospace	Ltd
-----------------------	-----

Dai t Aci	uspace	Liu								
W/O:			WORK ORDER CHANGES							
DATE	STEP	PRO	CEDURE CH	IANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
						<u>. </u>		, , , , , , ,		
Part No:		PAR #:	Fault Ca	tegory:	No DQ	·				
Resolution:			Disposit	ion:	closed:		Date: _			
NCR:		V	WORK OR	DER NON-CONFOR	MANCE (NC	R)				
DATE		Description of NC	`		Section B	Verifi	fication Approval	Approval	Approval	
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng			ion C	Chief Eng	QC Inspector	
				<i>,</i>			·			
							٠			

230

QC4-100% Inspect kits for completeness

Memo

0.00

220 Packaging

Packaging

Memo

0.00

Quality Control

0.00

Dart Aeros	pace Ltd	
-------------------	----------	--

Dail Aci	ospace									
W/O:			W	ORK ORDER CHANG	ES			·	· •	
DATE	STEP	PRO	CEDURE CH	IANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
		•								
								·		
Part No		PAR #:	Fault Category: NC			NCR: Yes No DQA: Date:				
	R	esolution:	Disposition: Q			Closed:		Date:		
NCR:		V	VORK OR	DER NON-CONFORMA	ANCE (NC	R)				
DATE	STEP	Description of NC Section A	Initial	Corrective Action Section Action Description	Sign	& Sect	cation ion C	Approval Chief Eng	Approval QC Inspector	
			Chief Eng	Chief Eng	Dat	e				
	- ;									
,										
							·			
							•			
	1				1			İ	1	

Work Order ID 81516 *81516* Page 7 * March-15-12 8:42:37 AM Item ID: D350-748-101 Accept *N900040100* Setup Start U/R **Revision ID:** Crosstube Installation, High Fwd Item Name: Start Qty: 1.00 **Start Date:** 15/03/2012 **Cust Item ID: Required Date:** 04/04/2012 **Req'd Qty:** 1.00 **Customer:** Reference: Run Process Plan: Approvals: Tooling: Date: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation Tool # Plan Tool ID Set Up/ Reject Reject Accept Insp. Work Center ID Description Qty **Run Hours** Code Oty Number Stamp 240 0.00 Packaging *240* Packaging 0.00 Memo Packaging Identify and pack for shipping as per PPP D350-748-101 Location: 250

0.00

0.00

QC21- Final Inspection - Work Order Release

Memo

250

Quality Control

MJ 12/06/26 MK 1206-25

Dart Aer	ospace	; Liu ,								
W/O:		·	W	ORK ORDER CHANG	ES					
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector	
			·						77.1	
		·	· ·							
Decelution			Fault Category: NC			NCR: Yes No DQA: Date:				
-	, R	esolution:	Dispositi	on:	_ QA: N/C C	losed:		Date: _		
NCR:		1	WORK ORD	DER NON-CONFORMA	ANCE (NC	R)				
DATE	STEP	Description of NC			ion B Sign		cation	Approval Chief Eng	Approval	
	0	Section A	Chief Eng	Action Description Chief Eng	Date		Section C		QC Inspector	
								:		
•										
							•			
		,								
	•.									
					,					
•										

Work Order ID: 81516

81516

Parent Item:

D350-748-101

D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 15/03/2012

Required Date: 04/04/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A New Issue 06-07-05 JLM

IPP Rev:B Update qty of MS21042L5 06-09-12 KJ

IPP Rev:C Rev B 07-11-15 DD

IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F

10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Status Issued
D350-748-141TRN *D350-748 Crosstube Turning Detail	8-141TF	Manufactured	No	<i>B</i> 74	1712	110	Each	0.0000	**	1	AW	12-5-9
ALS4-1032-225 *AI S4-103	32-225*	Purchased	No			200	Each	1,102.000	**	1	m/ 17	0824
				Location		Loc	<u>Qty</u>	Loc Code				

118520

Loc Qty Loc Code ST281 1019 108696 146 110768 62 118386 55 118966 68 120671 688 ST282 83 70 120410 13 120451 200 Each 0.0000 **

AN960JD10

NAS1149D0363J Purchased

No

AN960.ID10

Washer

Dart	Aeros	pace	Ltd
-------------	--------------	------	-----

W/O:)	W	ORK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No: PAR #:		PAR #:	Fault Cat	egory:	NCR: Yes	No DQ	Date:		
Resolution:			Disposition: G			Closed:		Date: _	<u> </u>
NCR:				DER NON-CONFORM					
DATE	STEP	Description of NC Section A	Corrective Action Initial Action Descri		Section B Sign &		Verification Section C		Approval QC Inspector
	ļ	Occurry.	Chief Eng	Chief Eng	Dat	e		Chief Eng	
						*			
									-
	1	ī			1	1		1	I

Picklist Print March-15-12 8:42:41 AM					**************************************			· ·	Page 2
Work Order ID: 81516 Parent Item: D350-748-101 Parent Item Name: Crosstube Instal	lation, High Fwd		516* 550-748-	101*			rt Date: 15		Required Date: 04/04/2012
D2856-400 *D2856-400* Abrasion Strip	Manufactured	No		200	f	199.5445	1.181	1 243158	Required Qty: 1.00
·	81875		Location ST409 63735 68076 71164 79551		0.6696 0.3149 8.46 190.1	<u>Loc Code</u>			
D3502-I *D3502-1* Support	Manufactured	No		200	Each	39.0000	2 **	2	120624
<u>7704</u> MS21920-20	Purchased		Location ST051 73419 74873	<u>1</u> 200	39 19 20 Each	<u>Loc Code</u> 60.0000	2	2	
M\$21920-20 Clamp (per MIL-DTL-8783C)		•	Location LG050 116799 120475 120676	Ţ	60 8 2 50	Loc Code	** -		N 12 06 24

121274

W/O:		WORK ORDER CHANGES										
DATE	STÉP	PRO	OCEDURE CHA	ANGE	Ву	Dat	e Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
								· · · · · · · · · · · · · · · · · · ·				
				•								
		PAR #:	Fault Cate	egory:	NCR: Ye	s No	DQA:	_ Date: _				
	R	esolution:	Disposition	on:	QA: N/C	Closed	•	Date: _				
NCR:			WORK ORD	ER NON-CONFORM	MANCE (NO	CR)						
D.4.T.F.	0===	Description of NC	iption of NC Corrective Action			v	erification	Approval	Approval			
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	າ Sigi Da	1 &	Section C	Chief Eng	QC Inspector			
					-							
							*					
		.						-				
												

March-15-12 8:42:41 AM

81516 Work Order ID: 81516 *D350-748-101* Parent Item: D350-748-101 Required Date: 04/04/2012 Parent Item Name: Crosstube Installation, High Fwd Start Date: 15/03/2012 Start Qty: 1.00 Required Qty: 1.00 MS27039-1-10 No 200 Each 258.0000 Purchased W 12 06 24 ** *MS27039-1-10* Screw Location Loc Qty Loc Code 122027 GA 100 120449 100 ST291 158 120120 158 220 387.0000 AN4-41A Purchased No Each ** *AN4-41A* Location Loc Qty Loc Code ST360 387 115108 3 115705 117619 27 118451 50 118838 50 119328 100 120423 150 220 1,649.000 16 Each 16 AN4-6A Purchased No ** *AN4-6A* Location Loc Qty Loc Code ST356 1649 1649 119017

Dart Aerospace Ltd

Dail Aci	ospace	ELM							•		
W/O:			WO	RK ORDER CHANG	ES						
DATE	STEP	PRO	CEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
Part No:		PAR #:	Fault Cate	jory:	NCR: Yes No DQA: Date: _						
	Resolution:):	_ QA: N/C	Closed:		Date: _			
NCR:			WORK ORDE	ER NON-CONFORMA	NCE (NC	R)					
		Description of NC Section A			on B	Verific	ation	Approval	Approval		
DATE	STEP		Initial Chief Eng	Action Description Chief Eng	Sign Date	& Secti	on C	Chief Eng	QC Inspector		
		•									
									3 4 4		
		· · · · · · · · · · · · · · · · · · ·					,				
1	1	I	1 1		ı	1		I	1		

Picklist Print March-15-12 8:42:42 AM										Page 4
Work Order ID: 81516		*81	516*							
Parent Item: D350-748-101			50-748-1	1 0 1*						
Parent Item Name: Crosstube In	nstallation, High Fwd	1 7.3	.)()= / 4()=	1 () 1			tart Date: Start Qty:	15/03/2012 1.00	Required Date: Required Qty:	
AN5-32A	Purchased	No		220	Each	256.0000	4	A		
AN5-32A							**	∜		
		Ī	_ocation	<u>L</u> c	oc Qty	Loc Code		1		
		S	ST339		256					
			119328		100				<u> </u>	
			119862		50					
			120423 120717		75				_	
			120717		30			4	_	
AN960JD416 NAS1149	D0463J Purchased	No	ت الم	220	Each	14.0000	32	32	_ /)	
*AN960.ID4163							**	MI	1912	
		<u>I</u>	ocation	<u>Lo</u>	e Oty	Loc Code				
		S	T351		14				_	
			116289		14				/)
AN960JD516 NAS1149	D0563J Purchased	No		220	Each	0.0000	8	8	4)
*AN960.ID5167	t						**	W 11	95468	·
D3500-1	Manufactured	No		220	Each	35.0000	4	4	Γ	1 1
D3500-1							**	B73	5405 Il	12/6/2
		<u>I</u>	ocation	Lo	c Qty	Loc Code		-		
		S	T424		35					
			73406		8				_	
			76000		27					

Dart Aeı	rospace	e Ltd							
W/O:			A	VORK ORDER CHANG	ES				
DATE	STEP	PRO	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		·							
Part No		PAR #:		•					
	R	esolution:	Disposit	ion:	QA: N/C C	osed:		Date: _	
NCR:		W	ORK OR	DER NON-CONFORM	ANCE (NCF	?)			
DATE	STEP	Description of NC	Initial	Corrective Action Sect Action Description	ion B Sign 8	9 1	cation	Approval	Approval
		Section A	Chief Eng	Chief Eng	Date	Section C		Chief Eng	QC Inspector
							i.		
	•								

117611 118179

119109

42

12

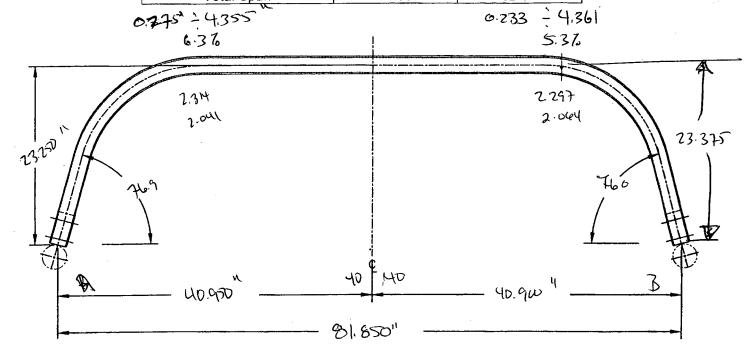
1500

Dart Aerospace Ltd

W/O:	•		V	ORK ORDER CHANG	ES		·		•	
DATE	STEP	PROCEDURE CHANGE			Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
-										
						<u> </u>		, <u>, , , , , , , , , , , , , , , , , , </u>		
	·									
Part No		PAR #:	Fault Ca	tegory:	NCR: Yes	No DQ	A:	_ Date: _		
	Ŗ	esolution:	solution: Disposition:			QA: N/C Closed: Date:				
NCR:		V	ORK OR	DER NON-CONFORM	ANCE (NC	R)				
DATE	STEP	Description of NC		tion B	Verifi	Verification	Approval	Approval		
DAIE	SIEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date		ion C	Chief Eng	QC Inspector	
**************************************		·								
								:		
						,				
					•					
,										

DART AEROSPACE LTD	Work Order:	81516.
Description: Crosstube High Fwd (AS350/355)	Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: F		Page 1 of 1

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments					
Sine A = 6.3% C	rushin	Θ	40 PG	الكافي	
	rushi	0	40 PG	ومون	
twist = 6.366"	^		_		.
	Accept	table	\mathcal{C}	12.05.10	asion
	, \subset ,				
QC15 Inspection		. /			
Date	17/	15/10	/		

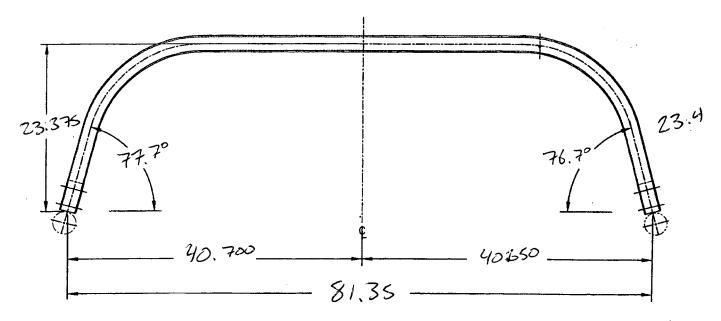
Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	10.08.23	Dwg Rev updated	KJ 1/	1.
С	11.11.07	Dwg Rev updated	KJ 😾	M

Dart Aerospace Ltd

	•									
W/O:			W	ORK ORDER CHAN	GES		•	٠,		
DATE	STEP	PRO	OCEDURE CHA	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
										¥ .
										٠
Part No	:	PAR #:	Fault Cate	egory:	NCF	l: Yes	No DQ	A:	_ Date: _	
	R	esolution:	Disposition	n:	QA:	N/C CId	sed:		Date: _	
NCR:		-	WORK ORD	ER NON-CONFORM	ANCE	(NCR)			
DATE	STEP	Description of NC		Corrective Action Section B			Verific	Verification	Approval	Approval
DATE	SIEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Secti	on C	Chief Eng	QC Inspector
									-	
* •								•		

DART AEROSPACE LTD	Work Order:	81516
Description: Crosstube High Fwd (AS350/355)	Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: F		Page 1 of 1

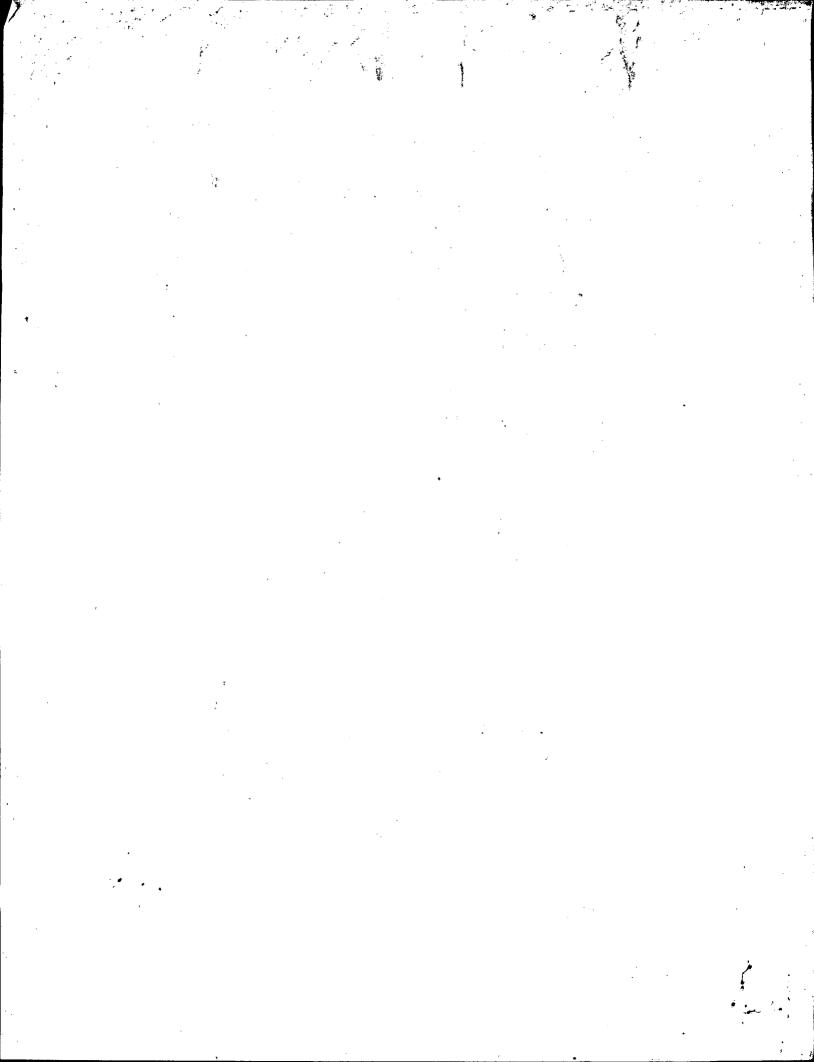
Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



	mo	12-5-17
Comments		
Twist : 0.090		
Acceptable (P12.05.17 Q51042		
~		

QC15 Inspection	
Date	7/9/17

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	10.08.23	Dwg Rev updated	KJ 1∆.	1.
С	11.11.07	Dwg Rev updated	KJ 🕬	M



F

Item	Qty -141	Part Number	Description
1	Х	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC, M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115

FINISHED LENGTH = 110.270±0.06

2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2 CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

UNITS: INCHES UNLESS OTHERWISE NOTED. BREAK SHARP EDGES: 0.005 TO 0.010 MAX.

6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS)

7) WEIGHT: 30.45 lbs

PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.

BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.

11) HEATTREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.

12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.

13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

SHOP COPY RETURN TO ENGINEERING **UNCONTROLLED COPY** SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER DBISILO MUS

\$ 11.07.12

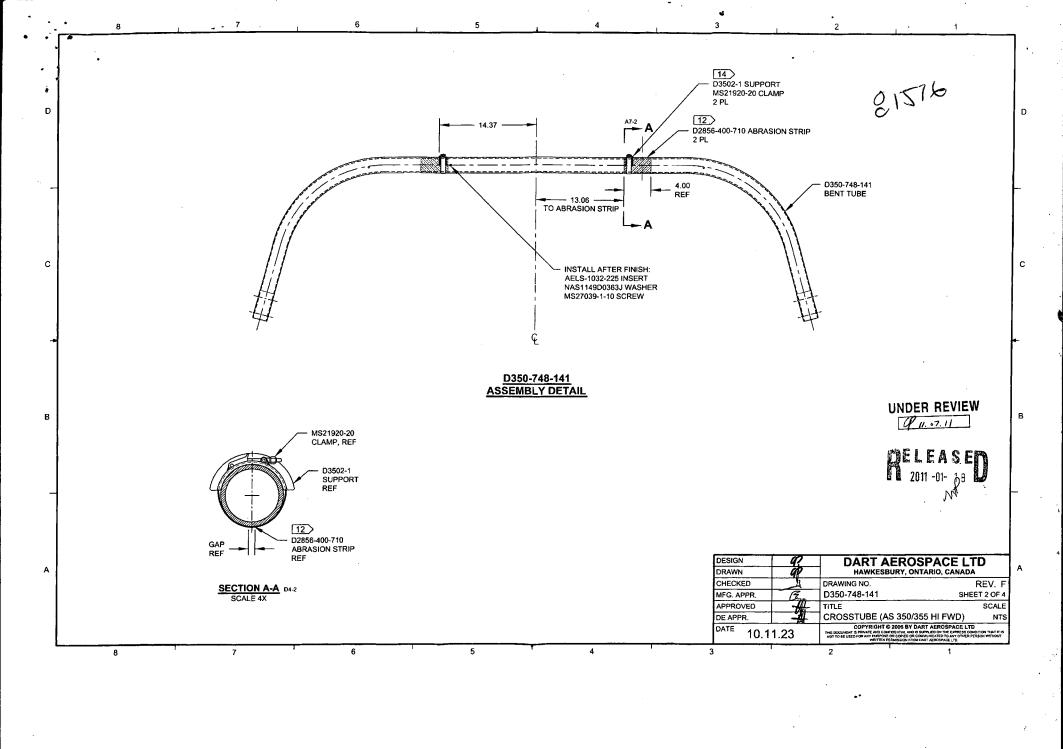
В

ADD HRC TEST OPTION (88-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4) REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3) D MAG. PARTICLE AND CAD PLATE AS MFD. CP 06:08.14 C ADD CAD PLATING CP 06:08.14 A NEW ISSUE CP 06:03.31 REV. DESCRIPTION BY DATE	DESIGN	M DART ACROCK		TD
F	REV.	DESCRIPTION	BY	DATE
F TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION CP 10.11.23 (C8-1), STOCK DIM NOW MACHINED (D1-4) REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3) D MAG, PARTICLE AND CAD PLATE AS MFD. CP 06.10.31 C ADD CAD PLATING CP 06.08.14	Α	NEW ISSUE	CP	06.03.31
F TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION CP 10.11.23	В	ADD D6017-115 & PRIME AND PAINT	СР	06.06.30
F TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION CP 10.11.23 (C8-1), STOCK DIM NOW MACHINED (D1-4) REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG ## PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	С	ADD CAD PLATING	CP	06.08.14
F TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION CP 10.11.23 (C8-1), STOCK DIM NOW MACHINED (D1-4) REVISE GENERAL NOTES; UPDATE TO CURRENT ADD E STANDARDS; RELOCATED FLAG #8 PER PAR 08-046 RF 09.09.30	D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
F TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION CP 10.11.23	E	STANDARDS; RELOCATED FLAG #6 PER PAR 08-046	RF	09.09.30
	F	TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION	СР	10.11.23

DESIGN	97	■ DART AEROSPAC	ELTD I				
DRAWN	97	HAWKESBURY, ONTARIO, CANADA					
CHECKED	_	DRAWING NO.	REV. F				
MFG. APPR.	E	D350-748-141	SHEET 1 OF 4				
APPROVED	#	TITLE	SCALE				
DE APPR.	#	CROSSTUBE (AS 350/355 HI FV	VD) NTS				
DATE 10.1	1.23	COPYRIGHT © 2006 BY DART AEROSS THIS DOCUMENT IS PRIVATE AND COMPONENTIAL AND IS SUPPLIED ON THE MOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO WHITTEN PURPOSEON FROM DART AEROSPACE	EXPRESS CONDITION THAT IT IS ANY OTHER PERSON WITHOUT				

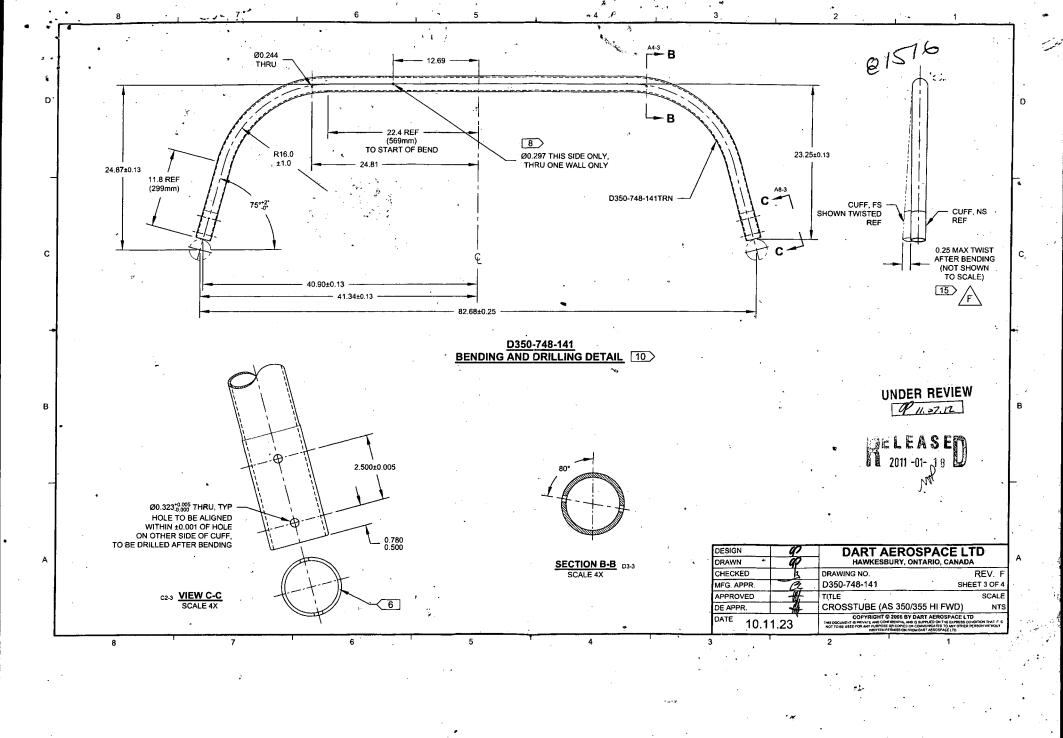
Dart Aerospa	ace	Ltd
---------------------	-----	-----

Dark Aci	Ospace	; Ltu								
W/O:		•		WC	ORK ORDER CHANG	GES				*
DATE	STEP		PRO	CEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1							·
		тиа.	SANCE CONTRACTOR SANCES OF							
Part No			PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	A :	Date:	
	R				n:					
NCR:				WORK ORD	ER NON-CONFORM	ANCE (NC	R)			
DATE	STEP	Descrip	tion of NC			tion B	Verification		Approval	Approvai
DAIL	SIEF	Sec	tion A	Initial Chief Eng	Action Description Chief Eng	Sign Date		tion C	Chief Eng	QC Inspector
#								•		
			,							
			<u> </u>			, <u> </u>				



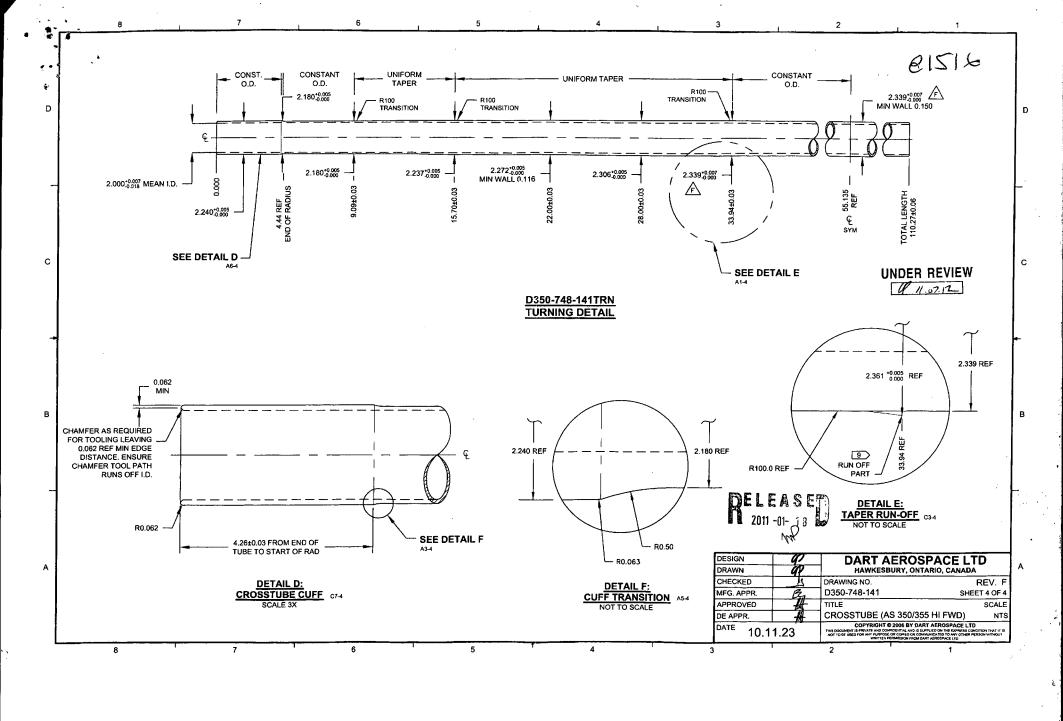
	• *	
Dart Aerospa		
I IST ASTACAS	ce.	
Dall Aciusua	-	

W/O:			W	ORK OR	DER CHANGE	S		· · · · · · · · · · · · · · · · · · ·		<u> </u>	•
<u> </u>	STEP	PROCE	DURE CH	<u> </u>			Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
· · ·	· -										
				•	. •						
Part No		PAR #:									
	R	esolution:								Date: _	
NCR:		WC	RK ORD	ER NON-	-CONFORMAI	VCE	(NCR	()		- ∲	
DATE	STEP	Description of NC Section A	Initial Action Description Chief Eng Chief Eng			пВ	Sign & Date	Verific Section		Approval Chief Eng	Approval QC Inspector
s de la companya de								,			(
					5						
		*									



Dart Aerospace Ltd

- Dait Moi	oopaoo									
W/O:	-	2.7.	W	ORK ORDER CH	HANGES					•
DATE	STEP	· J	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
					 · · ·	`				
Part No:	·	PAR #:	Fault Cat	egory:	NC	R: Yes	No DQ	A:	_ Date: _	
	R	esolution:	Dispositi	on:	QA	NC CIO	sed:		Date: _	
NCR:			WORK ORI	DER NON-CONF	ORMANCE	(NCR)			
DATE	STEP	Description of NC Section A	Initial	Corrective Action Action Descri	Section B iption	Sign & Date	Verific Secti		Approval Chief Eng	Approval QC Inspector
·			Chief Eng	Chief Eng		Date				
1										
;										
								,		1
	·				•				,	
		•								



Dart /	Aerospace	Ltd
--------	-----------	-----

Dail At	oshace	Lu						•	
W/O: -	-		WO	RK ORDER CHANGE	ES				• • • •
DATE	STEP	PRO	CEDURE CHAI	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		•							
							-		
. 10									
									·,
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	A:	Date:	
	R	esolution:	Disposition	ı:	QA: N/C C	osed:		Date: _	
NCR:	, , , , ,	\	WORK ORDE	R NON-CONFORMA	NCE (NCF	3)			
DATE	CTED	Description of NC			VARIICSION ANNOVOI ANT				
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Sect	ion C	Chief Eng	QC Inspector
									·
								- - - -	
									1

METCOR INC. 560 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT, load
175881	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to: DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT	MATÉRIEL	CODE DE TRAITEMENT	NUMÉRO DE LOT
	customer shipper no.	material	mat'l heat code	lot number
16942		Steel		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

STRESS REL

SAE AMS 2759/1 REV.E

EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results Visual

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
7	210	D350-748-101 (1) CROSSTUBE
		(1) D350-748-101 CROSSTUBE
		(1) D350-748-201 CROSS TUBE
		(1) D350-748-201 CROSS TUBE
	-)-7	(1) D350-748-201 CROSS TUBE
		(1) D350-748-201 CROSS TUBE
		(1) D350-748-201 CROSS TUBE
		CONTENANT: 1 PALETTE

Operation	Temp. spécifiée Specified Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four# Furnace#	`	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1,00 CONT. INIT.	Į.	si nécessaire							

METCOR INC. 560 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, OC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
175881	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to: DART AEROSPACE 1270 ABÉRDEEN HAWKESBURY

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Spak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time in	Heure de sortie Time Out	Date Complétée Date complete
2,00 PREPARINC	COMPTAGE									
3,00 STRESS RE		2 hrs 30 minutes	air			701				
4,00 FINAL INSP				······································			05-11-2012			05-11-2012

COMMENTAIRES / comments

ALL THE HEAT TREATMENT PROCESSING PERFORMED ON THIS ORDER WAS ACCOMPLISHED USING HEAT TREATMENT EQUIPEMENT THAT MEETS THE REQUIREMENTS OF AMS 2759. ALL THE HEAT TREATMENT OPERATIONS. FRE ACCOMPLISHED IN ACCORDANCE WITH THE REQUESTED/REQUIRED HEAT TREATMENT SPECIFICATION AND ALL REQUIRED VERIFICATIONS TEST HAVE BEEN PERFORMED AND DOCUMENTED. NO UNAUTHORIZED CHANGES OR DEVIATIONS TO REQUIRED HEAT TREATMENT SPECIFICATIONS OR PROCEDURES HAVE BEEN PERFORMED.

APPROUVÉ par / Approved by:

DATE: 2012-05-11

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.

CERTIFICATE OF CONFORMANCE

CADORATH PLATING CO. LTD. 2150 LOGAN AVENUE WINNIPEG, MANITOBA R2J-0J1

DATE:

Jun-12-2012

CONSIGNED TO: Dart Aerospace Ltd.

1270 Aberdeen St.

Hawksbury, ON K6A 1K7

W/O #:

114968

INVOICE #:

60875

CONTRACT OR

~PURCHASE ORDER #

PO17084

DESCRIPTION:

CROSSTUBE

QTY

1

P/N # d350-748-101

81516

STRESS RELIEVE HEAT CHART # 12-546. MPI-IAW ASTM-E-1444. CADMIUM PLATE IAW AMS-QQP-416C TYPE 2 YELLOW CLASS. BAKE HEAT CHART # 12-573. MPI IAW ASTM-E1444.

Salalie

CERTIFICATE: I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.

Approved Inspector:

Chris Provencal

From:

David Shepherd <dshepherd@dartaero.com>

Sent:

Tuesday, April 27, 2010 3:40 PM

To:

'Mike Petsche'

Cc:

'Bill Beckett'; 'L Lacelle'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com

Subject:

350 crosstubes

Mike.

I discussed the 350 crosstube load testing with Bill a little while ago and this plan makes sense to him.

So, my recommendation to clear these crosstubes is to load the fwd crosstubes to 3500 lb and the aft crosstubes to 3000 lb in the deflection test rig and document on the work orders that this test has been completed. Hold max load for 1 minute. Per TP-D350-748-2, these loads represent the maximum load on these crosstubes at gross weight and are below the yield point of the material. I would like to request that Chris Provencal witness these tests and sign off the work orders based on his experience with Dart landing gears. My feeling is that if there is a problem with the parts, it will manifest itself during this load test. I, for one, would feel a lot more confident in testing each crosstube in this manner than relying totally on what Exova has to say. I think it would be very difficult to reach a conclusion on the whole batch on the basis of cracks in two parts from the batch.

I believe that we can accomplish this before next Friday, which also gives us time to hear what Exova has to say in case it has an impact on our decision. So far, what I have seen from Exova shows me that there are fluctuations in the heat treating but the tubes are heat treated to our specification.

For this reason, I believe we should tell DHS that it looks like we will be able to start shipping 350 crosstubes by May 7th pending a successful Engineering test of the material.

David.

LIQUID PENETRANT TEST REPORT P- 12187. ACUREN CLIENT JAT ALOO JACE DATE JAT ALOO JACE JAT ALOO JACE DATE JAT ALOO JACE DATE JAT ALOO JACE JAT ALOO JACE DATE JAT ALOO JACE DATE JAT ALOO JACE DATE JAT ALOO JACE JAT ALOO JACE JAT ALOO JACE ACUREN JOHN JOHN JOHN JOHN JOHN JOHN JOHN JOH						
CLIENT ACTENTION ANATT LINEAL ACREMAND SINCE 19/00/2 TAME AM IN PM ACREMAND SINCE 19/00/2 TAME AM IN PM ADDRESS ADDRESS POWON NO. 98 - 12 - C 2/6 5 POWON NO. MANUAL SINCE S	ACUREN	L	IQUID PENET	RANT TES	T REPORT	P- 12187
CLIENT JAL JALO JAC DATE JUME 19/4012 TIME AM JAM PM ATTENDRO JACOB ADDRESS JACOB SERVIDATE JOS ADDRESS JACOB SERVIDATE JOS ADDRESS JACOB SERVIDATE JOS SERV	ACOVEIA	,	A .		4.	
ACOPRESS A DO ABELDER D. WORK LOCATION JAME DO JECT F. J. C. CLOST JATA YL A J -0.56 Rev. IDATE J. J.	CLIENT	DAT ARROS) (ACE	DATE	Jule 19/2012	
PPOJECT PROCEDURE NO. LT COLOSS TURBS B DESCRIPTION PROCEDURE NO. LT COLOSS TURBS THICKNESS VALUE THICKNESS VALUE THICKNESS VALUE THICKNESS VALUE THICKNESS VALUE THICKNESS VALUE TEST DETAILS MITTER TO THE TOLOGRAPH TOLOGRAPH TEST DETAILS METHOD A FLUORESCENT VISIBLE WATER WASH SOLVENT REMOVABLE POST EMULSIFIED B AND LIGHT METHOD SOLVENT PROBLEMENT OF COLOR OF SURFACE PRESETANT TOLOGY MINIMUM DOPEL TIME 10 MINIMUM TOLOGRAPH TOLOGRAPH PROFIT AND TOLOGY MINIMUM DOPEL TIME 10 MINIMUM TOLOGRAPH TOLOGY TEST SURFACE TOLOGY MINIMUM DOPEL TIME 10 MINIMUM TOLOGRAPH TOLOGY	ATTENTION	MA77/6	AGU	ACUREN JOB NO.	188 -12-	C0265
ACCEPTANCE STO \$5TA_\N1760/-056 REV/DATE \$20.5 F.F.T. ON CLOSS TUBBS B DE*CRIPTION PROCEDURE NO. LT_000_REV/DATE \$20.8 TECHNIQUE NO. LT_001_REV/DATE \$20.6 THICKNESS VA2.0 **NO. SEE CENTY MATERIAL 1/30 STEEL THICKNESS VA2.0 **NO. SEE CENTY LOUD PENE THICKNESS VA2.0 **THE STOPPORT OF THE SEATON AND CONTROL OF THE SEATON AND C	ADDRESS	1220 ABELDE	EN SZI.	PO/WO No.	17084 -	
ACCEPTANCE STO \$57M_\Y\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		MANKES BURY	ما .	WORK LOCATION	SAME	
DP OLECT SEE CESULT SEE CESULT B DESCRIPTION PROCEDURE NO. LT/CAZ REV/DATE SEE CESULT MATERIAL 1/30 STEEL THICKNESS VARIOUS THICKNESS VARIOUS THICKNESS VARIOUS THICKNESS VARIOUS THICKNESS VARIOUS TEST DETAILS METHOD A FLUORESCENT VISIBLE WATER WASH BLOCK LIGHT SIN 1/5/3 SOUTHOUT 1 1000 p W/GMF TEST DETAILS METHOD A FLUORESCENT VISIBLE WATER WASH BLOCK LIGHT SIN 1/5/3 SOUTHOUT 1 1000 p W/GMF A MINIMUM DWELL TIME 1/3 MN LIGHTING EQUIP. PLASSILISHT I TROUBLE LIGHT OUTPUT-100 fc @ SURFACE PENETRANT REMOVER THE ST DURFACE SURFACE		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 		157 1412 1011 APS	PEV/DATE 200
SE CESULTS B DEFCRIPTION	Doo for		EOT	. .	C - D - 10	REV./DATE
B DESCRIPTION PROCEDURE NO. LTCOQ REVIDATE 2008 TECHNIQUE NO. LTCAT REVIDATE 2008 THICKNESS VACAO THE SET FLOWESCENT LOUND POWE TWAT INTERIOR SET THICKNESS VACAO TEST DETAILS METHOD BLOCK LIGHT SIN /6757 OUTPUT > 1000 g. W/Lon' AMBIENT < 2 fc PENETRANT PACAO PENETRANT PACAO PENETRANT REMOVER H20 MINIMUM DWELL TIME 45 M MIN. LIGHTING EQUIP. PLASHIGHT OTROUBLEUGHT OUTPUT > 1000 g. W/Lon' AMBIENT < 2 fc PENETRANT REMOVER H20 MINIMUM DWELL TIME 10 MIN. LIGHTING EQUIP. PLASHIGHT OTROUBLEUGHT OUTPUT > 1000 g. W/Lon' TEST SURFACE SURFACE EXHIPTION SURFACE EXHIPTION SURFACE EXHIPTION AS GROUND AS WELDED AS WELDED MACHINED SHOT BLASTED CLEAN BARRE METAL STANDARD CONTROLL OF ACT OF TO 10°C/50°F RESULTS WE HOD THE LABBLE OF THE PROPERTY OF T	_				Zures	· · · · · · · · · · · · · · · · · · ·
SUPPLICATION OF THE STAND STEEL THICKNESS VALUED TEST DETAILS METHOD AND A PLUX MINIMUM DEVELOPE PENETRANT PLUX PENETRAN	TEV(S) EXAMINED	(6 Pcs)	SEE	RESUL	.7)	
SUPPLICATION OF THE STAND STEEL THICKNESS VALUED TEST DETAILS METHOD AND A PLUX MINIMUM DEVELOPE PENETRANT PLUX PENETRAN	on Description					
TEST DETAILS METHOD	The state of the s		O. LI COOL REV./DATE	2000. 1		
TEST DETAILS METHOD SELOPRESCENT VISIBLE WATER WASH SOLVENT REMOVABLE POST EMULSIFIED FAMILY BRAND MAKNAPICLY BLACK LIGHT SN /6/15 OUTPUT > 1000 µ W/CM* DAMBIENT < 2 fc PENETRANT Z-L-G-7 MINIMUM DWELL TIME 4/3 MINIMUM CONTRANT MINIMUM DWELL TIME 4/3 MINIMUM DWELL TIME 4/3 MINIMUM DWELL TIME 4/3 MINIMUM DWELL TIME 4/3 MINIMUM DWELL TIME 10 MINI UIGHT METER SN /0.9 88/66 CAL DUE DATE DEVELOPER 1/4 AND AQUEOUS AQUEOUS DRY TEST SURFACE SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED SURFACE TEMPERATURE < 4°C/20°F TO 10°C/50°F 2/10°C/50°F TO 52°C/125°F > 52°C/125°F RESULTS METRIC IMPERIAL SAME SHOW	эт N O		レアン	MATERIAL 4/3	O STEEL THIC	KNESS VARIOUS
TEST DETAILS METHOD	COPE	WET FLUMESU	ENT LIQUE	D PENE	ZANT !	## Z 2J
METHOD FAMILY BRAND MAKNAPLOW DAMEDIA DEVELOPER DAMEDIA	INSPE	Elovinas Don	E 100 % a	NTHEE	X TENAL Su	NFACE ONLY
BLACK LIGHT SIN 64/5 QUIPPUT > 1000 \(\text{LW} \text{C} \) AMBIENT < 2 \(\text{C} \) PENETRANT PLOS \(\text{LW} \) MINIMUM DWELLTIME 10 MIN. LIGHTING EQUIP. FLASHLIGHT TROUBLELIGHT 10 UTPUT > 100 \(\text{C} \) SURFACE PENETRANT REMOVER PLOS MINIMUM DRY TIME 10 MIN. LIGHTING EQUIP. FLASHLIGHT TROUBLELIGHT TROUBLE TRO	TEST DETAILS				7	
BLACK LIGHT SIN 64/5 QUIPPUT > 1000 \(\text{LW} \text{C} \) AMBIENT < 2 \(\text{C} \) PENETRANT PLOS \(\text{LW} \) MINIMUM DWELLTIME 10 MIN. LIGHTING EQUIP. FLASHLIGHT TROUBLELIGHT 10 UTPUT > 100 \(\text{C} \) SURFACE PENETRANT REMOVER PLOS MINIMUM DRY TIME 10 MIN. LIGHTING EQUIP. FLASHLIGHT TROUBLELIGHT TROUBLE TRO	METHOD	☑ FLUORESCENT	☐ VISIBLE	WATER WASH	☐ SOLVENT REMO	VABLE POST EMULSIFIED
PENETRANT ## CO ## MINIMUM DWELL TIME 43 ## MIN LIGHTING EQUIP. FLASHLIGHT TROUBLELIGHT OUTPUT>100 fc @ SURFACE PENETRANT REMOVER	FAMILY BRAND					
DEVELOPER TYPE NON AQUEOUS AQUEOUS DRY TEST SURFACE SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL SURFACE TEMPERATURE C 4°C/ 20°F C 10°C/50°F D 10°C/50°F D 10°C/50°F TO 52°C/125°F RESULTS- Whetric Maperial Sold 93 Sold 94 Sold 93 Sold 93 Sold 93 Sold 93 Sold 93 Sold 93 Sold 94 Sold 93 Sold 94 Sold 93 Sold 93 Sold 93 Sold 93 Sold 93 Sold 93 Sold 94 Sold 93 Sold 94 Sold 93 Sold 94 Sol	PENETRANT		ELL TIME 45 18 MIN.	LIGHTING EQUIP.		
DEVELOPER TYPE NON AQUEOUS AQUEOUS DRY TEST SURFACE SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL SURFACE TEMPERATURE 4-4°C/ 20°F 4°C/ 20°F TO 10°C/50°F M10°C/50°F TO 52°C/125°F 52°C/125°F RESULTS- METRIC MIMPERIAL Soupe of Services The agreement of Acuten Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understoned the descriptions of Acuten Group Inc. In perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understoned the descriptions of the control of the performance of the requested services. It is expressly understoned the descriptions of Acuten Group Inc. In performance of the requested services in the services of the descriptions of Acuten Group Inc. In no event shall Acuten Group Inc. In septemble of the services referred to a home performing such services in the services.						
TEST SURFACE SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL SURFACE TEMPERATURE 4-4°C/20°F 4-2°C/20°F TO 10°C/50°F M10°C/50°F TO 52°C/125°F RESULTS. METRIC MIMPERAL Super of Services 1				LIGHT METER S/N	1098866	
SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL SURFACE TEMPERATURE <-4°C/20°F - 4°C/20°F TO 10°C/50°F 2 10°C/50°F TO 52°C/125°F > 52°C/125°F RESULTS- METRIC IMPERIAL) Sope of Service The ignormanian from the interpretation of pulse or profess priviles assented only to have service provided for in writing. Under no circumstances had been performance of the represent services. It is suppretly understance in the service provided for in writing. Under no circumstances had assembles supplied by the interpretation of the region of pulse or region of pulse or profess from the services provided for in writing. Under no circumstances had assembles supplied by the interpretation of the region of the control of the control of the services and services assembles on surrounded. According to the interpretation of the services and services assembles of the services and services. It is suppretation of the control of the services and services assembles of the services services and services assembles as an example of the services and services. It is suppretation of the services and services are services assembles as an example of the services and services the services of the services of the services of the services of the services and services the services		NON AQUEOUS LI AQUE	OUS U DRY			du 70 JUD
Supplied Services The agreement of Aurena Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services enterprised by the requested services. It is expressly undersoon the description of Aurena Group Inc. to a perform service service special feet on writing. Under no circumstances shall such services service beyond the performance of the requested services. It is expressly undersoon the description of the performance of the requested services. It is expressly undersoon the description of the performance of the requested services. It is expressly undersoon the description of the performance of the requested services. It is expressly undersoon the description of the performance of the requested services. It is expressly undersoon the description of the continuous of a service of the expression of a service of the engineering and undersoon and assumption or surrounded by Aurena Group Inc. is not assuming any responsibilities of the convertigneering or and the description of the engineering manufacture, repair and use decisions as a result of a resonation provided by Auren Group Inc. in no event shall Acuren Group Inc. its all ordinarily accreticed under similar circumstances by others performing such services in the same or similar locality. No other warrant, expn reset	The second secon		- 14/	*		55.0
RESULTS- METRIC IMPERIAL) 1						
Scope of Services The agreement of Acturen Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understand the services and several contents and expressions of opinion reflect the opinions or observations of Acturen Group Inc. based on information and assumptions supplied by the owner/operator and are not intended not can they be construed as a several content of the engineering, manufacture, repair and nee decisions as a result of the content of the engineering, manufacture, repair and nee decisions as a result of the content of the engineering and the content of the engineering and the decisions as a result of the content of the engineering and the decisions as a result of the content of the engineering and the decisions as a result of the engineering and the decisions as a result of the engineering and the engineering and the decisions as a result of the engineering and e			2 -4 C/ 20 1 10 10 C/30		2 10 0/30 1 10 32 0/123 1	32 0/123 1
Scope of Services The agreement of Acuten Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understand the services extend depend on the construction of Acuten Group Inc. to make the opinions or observations of Acuten Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construct as a secundations or narrantices. Acuten Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of on the contraction of the services referred to herein exceed the amount paid for such services. And of C are		THE THE TANK ENGLEY		JAT ST	N. 24 (24)	
Scope of Services The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understoned the descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a statistical construction or surrantices. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator and two owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of a dard of Care. Adard of Care and the provided by Acuren Group Inc. in no event shall Acuren Group Inc. were shall as the construction of the services referred to herein acceed the amount paid for such services. Adard of Care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warrants, expressed		. closs TuB	ES			
Scope of Services The agreement of Acturen Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understant if descriptions, comments and expressions of opinion reflect the opinions or observations of Acturen Group Inc. is and expressions of opinion reflect the opinions or observations of Acturen Group Inc. is an actually to the owner/operator and are not intended nor can they be construed as a sessification for normalizes. Acturen Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result for on other mornation provided by Acturen Group Inc. In no event shall Acturen Group Inc. is liability in respect of the services referred to herein exceed the amount paid for such services. The dard of C tree the opinion of the performance of the requested services in the same or similar locality. No other warrants, expressed under similar circumstances by others performing such services in the same or similar locality. No other warrants, expressed	1	<i>"</i> 83700			ayan baran da ayan da a	
Scope of Services The agreement of Acturen Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understant if descriptions, comments and expressions of opinion reflect the opinions or observations of Acturen Group Inc. is and expressions of opinion reflect the opinions or observations of Acturen Group Inc. is an actually to the owner/operator and are not intended nor can they be construed as a sessification for normalizes. Acturen Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result for on other mornation provided by Acturen Group Inc. In no event shall Acturen Group Inc. is liability in respect of the services referred to herein exceed the amount paid for such services. The dard of C tree the opinion of the performance of the requested services in the same or similar locality. No other warrants, expressed under similar circumstances by others performing such services in the same or similar locality. No other warrants, expressed	1 _ 11	1 9219F		Janes Caraller Company		ata para da santa da
Scope of Services The spreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understoned the descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a serviculations or surrantics. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result for an other cumulation provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. **Add of Care** **Core for a provided of Care** **Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed	<u> </u>	026 10	100 market (100 m) 100 m (100 m) 100 m (100 m) 100 m (100 m)	PRUME.		
Scope of Services The spreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understooded discontinuous, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a serviculations or surranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of a rother manufacture provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. **Adard of Care** **Incoming** **The services** **The surround of the same of similar locality. No other warranty, expressed to the surround of the same of similar locality. No other warranty, expressed to the surround of the surround of the same of similar locality. No other warranty, expressed to the surround of the	fi - e	· Car Del	<u> </u>			
Scope of Services The Agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understooded disconnected and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a securitations or surranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of an other curmation provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. Adard of Care the amount paid for such services in the same or similar locality. No other warranty, expressed	2	0 > 6 \ 17	: V			en film to a constant of the c
Scope of Services The Agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understooded disconnected and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a securitations or surranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of an other curmation provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. Adard of Care the amount paid for such services in the same or similar locality. No other warranty, expressed						ng kabupatèn di periodikan periodikan periodikan periodikan periodikan periodikan periodikan periodikan periodi
Scope of Services The spreament of Acturen Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understooded discontinus, comments and expressions of opinion reflect the opinions or observations of Acturen Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a seculations of acturen Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of a rother agricumation provided by Acturen Group Inc. In no event shall Acturen Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. Adard of Care The survey of the services of the services in the same or similar locality. No other warranty, expressed	1 - "	84381				
Scope of Services The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understook if descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a ventations or surranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of a confident intermediation provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. Adard of Care The agreement of Acuren Group Inc. was the degree, care and skill ordinarity exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed	1 - " "	815/0	./			
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understoned that discorprises, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a ventations of Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the area of other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. The dard of Care the amount paid for such services in the same or similar locality. No other warranty, expressed to the analysis of the services in the same or similar locality. No other warranty, expressed	7 1 "	" 8778		1000		
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understone at lidescriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a ventations of Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the area of other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. The dard of Care the amount paid for such services in the same or similar locality. No other warranty, expressed the amount paid for such services in the same or similar locality. No other warranty, expressed	، ایست				1.5	
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understone at lidescriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be constructed as a ventations of Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the area of other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. The dard of Care the amount paid for such services in the same or similar locality. No other warranty, expressed the amount paid for such services in the same or similar locality. No other warranty, expressed				M	11206-18	Strand Bank and
ill descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construct as a result of the engineering, manufacture, repair and use decisions as a result of the amount paid for such services. In no event shall Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. In no event shall Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. In no event shall Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. In no event shall Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. In no event shall Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.		oup Inc. to perform services extends only to those	services provided for in writing. Unde	r no circumstances shall su	ch services extend beyond the performance of	the requested services. It is expressly understood
or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services. dard of Care directing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed	: dl descriptions, commer	its and expressions of opinion reflect the opinion.	s or observations of Acuren Group Inc.	based on informatio <mark>n and a</mark>	ssumptions supplied by the owner/operator a	nd are not intended nor can they be construed as
straining in the same or similar locality. No other warranty, expressed under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed in	. or other gromation pre					
	climming a craces m		and skill ordinarily exercised under sin	ilar circumstances by other	s performing such services in the same or sin	illar locality. No other warranty, expressed

SIGNATURES				
ENT REPRESENTA	TIVE Matthew Murdoch	Master Mindal	DTR# E-63501	
	PRINT	SIGNATURE		
ÉLCHNICIAN (SIGNATURI	E):		REPORT	
	XII - 1/1 1		REVIEWED BY:	
NAME (PRINT):	MKE Lothe Zu		NAME INITIALS	
	ST TECHNICIAN	2 ND TECHNICIAN		
	CGSB LEVEL SNT LEVEL	CGSB LEVEL SNT LEVEL		
	CGSB REG. NO GGGGG	CGSB Reg. No		

_ . ---